

**ELECTRON SPECTROSCOPE WITH EMISSION INDUCED BY A  
MONOCHROMATIC ELECTRON BEAM**

**Abstract of the Disclosure**

An electroscope system excites a certain area of a surface of a sample to emit electrons with a characteristic distribution of kinetic energies. The analyzed area of the sample is excited by an electron beam produced by a field emission source. A monochromator energy filter for the electron beam is down-stream of the field emission source. The field emission electron source is preferably a Schottky source, and a monochromator energy filter reduces energy dispersion of the electrons of the electron beam to less than 0.2 eV. Microareas of linear dimensions on the order of ten nanometers may be analyzed while observing them. Information on the chemical state of the detected elements present at the surface of the examined microarea of the sample is gathered.